

**COMMUNICATION BUS SUITABLE FOR USE IN
A HAZARDOUS AREA OF A PROCESS PLANT**

ABSTRACT

A communication bus suitable for use in a hazardous area of a process plant includes a first transmission path adapted to communicate electrical signals in a first direction, and a second transmission path adapted to communicate electrical signals in a second direction. A safety device is coupled to each of the first and second transmission paths and includes a control unit adapted to detect a fault condition associated with the communication bus. The safety device further includes a switch unit adapted to interrupt the flow of electrical signals along each of the first and second transmission paths in response to the detected fault condition. In this manner, the detection circuitry of the communication bus automatically reduces or prevents the occurrence of sparks or arcing in the event of a fault condition associated with the communication bus.